

ART 3: AMOT

CLAIMS

1. A magnet system for a relay comprising a core (7b) partially enclosed by a coil (14) and a yoke (7) having a first yoke leg (7c) attached to a first end of the core (7b) and a second yoke leg extending parallel to the core (7b), the second yoke leg having an armature mounting portion (7a);

the armature mounting portion (7a) is formed on an upper side of the second yoke leg remote from the coil (14); and

a pole (6) has a first pole leg (6b) connected to a second end of the core (7b) and a second pole leg (6a) extending parallel to the core (7b), the second pole leg (6a) having an upper surface substantially aligned with the armature mounting portion (7a) such that when an armature (5) is mounted on the armature mounting portion (7a), a working air gap is formed between a coil-side armature face and the upper surface of the pole leg (6a);

and a fixed contact carrier (9) with a fixed contact (8) characterized in that the magnet system is extrusion coated with a plastics material (1), and that the coil (14), the yoke (7), the pole (6) and the

contact carrier (9) are embedded in the plastics material (1).

2. The magnet system according to claim 1, characterized  
5 in that the upper surface of the pole leg (6a) includes a crowned pole face 15.

3. The magnet system according to claim 1 or 2,  
characterized in that the yoke (7) is L-shaped.

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4. The magnet system according to any of claims 1 through  
3, characterized in that the pole (6) is L-shaped.

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5. The magnet system according to any of claims 1 through  
4, characterized in that the first pole leg (6b) is  
connected to the core (7b) by a U-shaped recess.

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6. The magnet system according to any of claims 1 through  
5, characterized in that an edge of the armature  
mounting portion (7a) and an edge of the second pole  
leg (6a) are positioned such that a gap is formed  
therebetween that is bridged by the armature (5).

7. The magnet system according to any of claims 1 through 6, characterized in that the fixed contact (8) arranged on the fixed contact carrier (9) is substantially aligned with the second pole leg (6a).

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8. The magnet system according to claim 7, characterized in that the fixed contact carrier (9) is offset in a direction of the core (7b).

10 9. The magnet system according to any of claims 1 through 8, characterized in that the magnet system is mounted on a coil body (12).

15 10. An electromagnetic relay comprising a magnet system having a core body (12) with a core (7b) partially enclosed by a coil (14), a yoke (7) having a first yoke leg (7c) attached to a first end of the core (7b) and a second yoke leg extending parallel to the core having an armature mounting portion (7b), a pole (6) having a first pole leg (6b) connected to a second end of the core (7b) and a second pole leg (6a) extending parallel to the core (7b);

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the magnet system has a fixed contact (8) arranged on a fixed contact carrier (9) substantially aligned

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with the second pole leg (6a), the fixed contact carrier (9) being offset in a direction of the core (7b) and arranged in the coil body (12); characterized in that

5           the magnet system is extrusion coated with a plastics material (1), whereby the coil (14), the yoke (7), the pole (6) and the contact carrier (9) are embedded in the plastics material.

10 11. The electromagnetic relay according to claim 10 characterized in that a sheet-like armature (5) is pivotally mounted on the armature mounting portion (7b), the armature (5) having a spring contact (3) with a switching contact (4) positioned adjacent to the  
15 fixed contact (8).

12. The electromagnetic relay according to claims 10 or 11 characterized in that the fixed contact carrier (9) is held by side portions (9b) in pockets (13a) of a side  
20 arm (13) of the coil body (12).

13. The electromagnetic relay according to claim 12, characterized in that the pole (6) is held between the

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side arm (13) and a first flange (11) of the coil body (12).

14. The electromagnetic relay according to any of claims 10  
5 through 13, characterized in that the free end of the spring contact (3) is movably received between injection molded webs (2, 2a).

15. The electromagnetic relay according to any of claims 10  
10 through 14, characterized in that the second pole leg (6a) has an upper surface substantially aligned with the armature mounting portion (7a).

16. The electromagnetic relay according to claim 15,  
15 characterized in that an edge of the armature mounting portion (7a) and an edge of the second pole leg (6a) are positioned such that a gap is formed therebetween that is bridged by the armature (5).

20 17. The electromagnetic relay according to any of claims 11 through 16, characterized in that the spring contact (3) is bent such that the switching contact (4) engages the fixed contact (8) before the armature engages the upper surface of the second pole leg (6a).

18. A method for producing a magnet system according to claim 1 for an electromagnetic relay, comprising the steps of:

5            inserting a magnet system into an injection mold (16);

             allocating a face of an armature mounting portion (7a), a pole leg (6a) and a fixed contact carrier (9) at complementary reference planes (17, 18, 19) in the  
10           injection mold (16); and

             pressing the face of the armature mounting portion (7a), the pole leg (6a) and the fixed contact carrier (9) into the associated reference planes (17, 18, 19) to achieve a desired size graduation between the faces.

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19. The method of claim 18, further comprising the step of injection molding webs (2, 2a) on opposing sides of the fixed contact carrier (9).